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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Q68205

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7590

10/12/2004

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EXAMINER

CHOWDHURY, TARIFUR RASHID

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 10/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/031,871

Applicant(s)

KAWAMOTO ET AL.

Examiner

Tarifur R Chowdhury

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on amendment filed on 08/03/04.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**3. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Scheffer, USPAT 4,032,218.**

4. Scheffer discloses (col. 2, lines 54-60) and shows in Fig. 1a, a polarizing member comprising a cholesteric liquid crystal layer (7), a quarter-wave plate (6), and a liquid crystal cell (3) (applicant's optical rotatory layer), wherein the quarter-wave plate (6) is interposed between the cholesteric liquid crystal layer (7) and the optical rotatory layer (3), the optical rotatory layer (3) being adjacent to the quarter-wave plate (6), and an absorption type polarizer (2) disposed on an upper side of the optical rotatory layer (3),

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so that the optical rotatory layer is interposed between the quarter-wave plate and the absorption type polarizer (2) (col. 2, line 62 – col. 3, line 6)

Still lacking is the limitation such as the optical rotatory layer being laminated on the quarter-wave plate through an adhesive layer. However, it is notoriously well known in the art to laminate two layers/elements together through an adhesive layer for advantages such as strong bonding and preventing the possibility of one layer flopping off the other and thus would have at least been obvious to one of ordinary skill in the art.

Accordingly, claim 1 would have been obvious.

As to claim 3, it is also clear from Fig. 1a as well as the disclosure of Scheffer that a major or minor axis of the optical rotatory layer in each of opposite surfaces of the optical rotatory layer is parallel to a plane of polarization of light linearly polarized by a combination of the cholesteric liquid crystal layer (7) and the quarter-wave plate (6) to an axis of polarization of the absorption-type polarizer (2)

**5. Claims 4, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scheffer as applied to claims 1 and 3 above and in view of Itoh et al., (Itoh), EP 0457607.**

6. Scheffer differs from the claimed invention because he does not explicitly disclose that the optical rotatory layer is made of a polymer containing a nematic liquid crystal monomer and optically active monomers as components.

Itoh discloses that an optical rotatory layer that is made of a polymer containing a nematic liquid crystal monomer and an optically active monomer as components. Itoh also discloses that such an optical rotatory layer is advantageous

since it permits a high accuracy in the wide range of wavelengths and in the fields of display (page 2, lines 1-2, 17-18).

Itoh is evidence that ordinary workers in the art would find a reason, suggestion or motivation to use an optical rotatory layer that is made of a polymer containing a nematic liquid crystal monomer and optically active monomers as components.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the polarizing member of Scheffer by substituting the optical rotatory layer with an optical rotatory layer that is made of a polymer containing a nematic liquid crystal monomer and optically active monomers as components so that a high accuracy in the wide range of wavelengths and in the fields of display can be obtained, as per the teachings of Itoh.

Accordingly, claim 4 would have been obvious.

As to claims 5 and 6, setting the condition for the degree of optical rotation of the optical rotatory layer to be satisfactory does not constitute a special design restriction. The degree of optical rotation is such as can be decided in accordance with factors such as required performance traits.

**7. Claims 1 and 3-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kishimoto Keiko (Kishimoto), JP 09-329779 in view of Itoh et al., (Itoh), EP 0457607.**

8. Kishimoto discloses a polarizing member comprising a cholesteric liquid crystal layer combined with a quarter-wave plate.

Kishimoto differs from the claimed invention because he does not explicitly

disclose the optical rotatory layer.

Itoh discloses an optical rotator. Itoh also discloses that optical rotator is used for the purpose of causing an azimuthal rotation of linear polarization or of elliptic polarization (page 2, lines 6-8).

Itoh is evidence that ordinary workers in the art would find a reason, suggestion or motivation to use an optical rotator.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the polarizing member of Kishimoto by employing an optical rotator so that azimuthal rotation of linear polarization or of elliptic polarization is achieved, as per the teachings of Itoh.

Further, since Itoh teaches the use of an optical rotatory layer to achieve rotation of polarization and Kishimoto discloses a polarizing member having a cholesteric liquid crystal layer and a quarter-wave plate, it would have been obvious to one of ordinary skill in the art that the modified structure would have the quarter-wave plate in between the cholesteric liquid crystal layer and the optical rotatory layer for achieving rotation of polarization.

Further the combination of Kishimoto and Itoh indicate a combination of an optical rotatory layer and an absorption type polarizing plate. It is also specified that the long axis or the short axis of the optically active layer is parallel to the polarizing surfaces of linear polarization due to the cholesteric layer and quarter-wave plate of the front and rear surfaces of the optically rotatory layer and the axis of polarization of the absorption type polarizing plate. However, considering the transmission of polarized

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light, stipulating the optically active layer so as to match the direction of the polarized wave of polarized light and the axis of polarization, etc., of the polarizing member, including the polarizing plates on either side of the optically active layer, is obvious to a person skilled in the art from the point of view of the technical significance of providing an optically active layer.

Still lacking is the limitation such as the optical rotatory layer being laminated on the quarter-wave plate through an adhesive layer. However, it is notoriously well known in the art to laminate two layers/elements together through an adhesive layer for advantages such as strong bonding and preventing the possibility of one layer flopping off the other and thus would have at least been obvious to one of ordinary skill in the art.

Accordingly, claims 1 and 3 would have been obvious.

As to claim 4, Itoh discloses that the optical rotatory layer is made of a polymer containing a nematic liquid crystal monomer and an optically active monomer as components.

As to claims 5 and 6, setting the condition for the degree of optical rotation of the optical rotatory layer to be satisfactory does not constitute a special design restriction. The degree of optical rotation is such as can be decided in accordance with factors such as required performance traits.

As to claims 7-10, Kishimoto discloses and shows that the polarizing member is disposed on the back side (opposite to a visual side) of the liquid crystal cell.

***Response to Arguments***

9. Applicant's arguments filed on 08/03/04 have been fully considered but they are not persuasive.

In response to applicant's argument that the liquid crystal cell of Scheffer essentially has to have an alignment film and an electrode layer on both surfaces of the liquid crystal layer and thus does not anticipate claim, it is respectfully pointed out to applicant that the argument is irrelevant since the claim does not preclude the optical rotatory layer from having alignment layers or electrode layers. Further, liquid crystal displays are known to function as rotatory layers since the basic function of a liquid crystal display is to rotate the polarization.

Therefore, the rejection was proper and thus maintained.

In response to applicant's argument that Kishimoto fails disclose an absorption type polarizer on the other side of the optical rotatory layer from a quarter-wave plate, applicant's attention is respectfully requested to the rejection above where the examiner clearly describes that by combining Kishimoto and Itoh one of ordinary skill in the art would come up with a similar structure for a polarizing member as claimed in the instant invention.

It is also pointed out to applicant that since Itoh teaches that the purpose of having an optical rotatory layer is to rotate a polarization plane of linearly polarized light one of ordinary skill in the art would be motivated to either place the optical rotatory layer next to the cholesteric layer adjacent to the quarter-wave plate because that way it



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will achieve the function such as rotating a polarization plane of linearly polarized light. It is also pointed out to applicant that a quarter-wave plate is capable of changing linear polarization into circular polarization as well as circular polarization into linear polarization.

Therefore, the rejection based on Kishimoto and Itoh was proper and thus maintained.

### ***Conclusion***

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tarifur R Chowdhury whose telephone number is (571) 272-2287. The examiner can normally be reached on M-Th (6:30-5:00) Friday Off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TRC  
October 06, 2004



TARIFUR R. CHOWDHURY  
PRIMARY EXAMINER